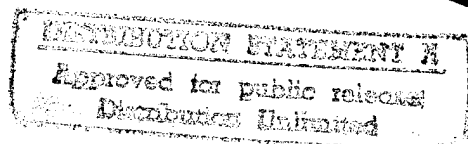
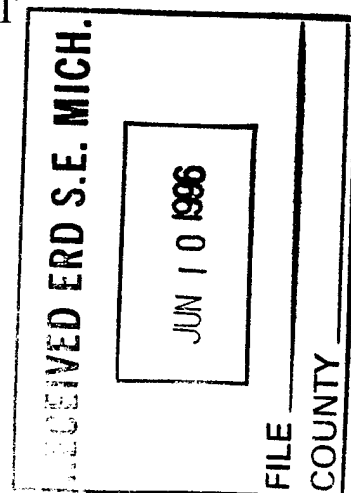


INSTALLATION RESTORATION PROGRAM

FINAL INSTALLATION RESTORATION PROGRAM DECISION DOCUMENT - SITE 11

ALPENA COMBAT READINESS TRAINING CENTER
MICHIGAN AIR NATIONAL GUARD
ALPENA COUNTY REGIONAL AIRPORT
ALPENA, MICHIGAN

MAY 1996



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HAZARDOUS WASTE REMEDIAL ACTIONS PROGRAM
Environmental Restoration and Waste Management Programs

Oak Ridge, Tennessee 37831-7606
managed by LOCKHEED MARTIN ENERGY SYSTEMS, INC.
for the U.S. DEPARTMENT OF ENERGY under contract DE-AC05-84OR21400

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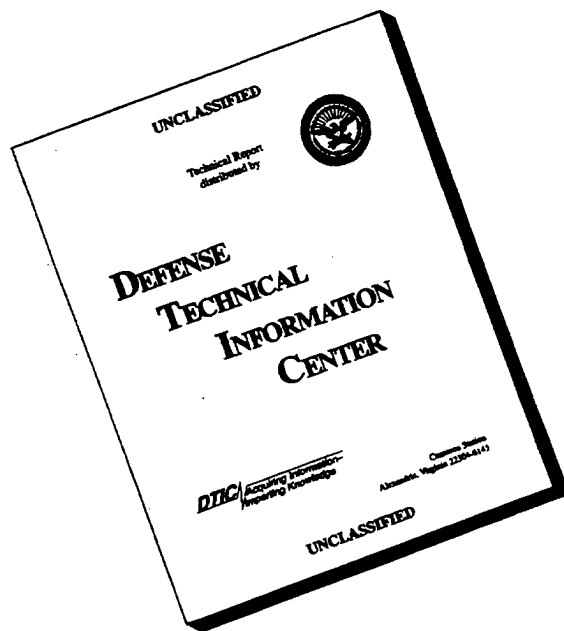
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FINAL

INSTALLATION RESTORATION PROGRAM
DECISION DOCUMENT - SITE 11

ALPENA COMBAT READINESS TRAINING CENTER
MICHIGAN AIR NATIONAL GUARD
ALPENA COUNTY REGIONAL AIRPORT
ALPENA, MICHIGAN

Submitted to:

AIR NATIONAL GUARD READINESS CENTER
ANDREWS AFB, MARYLAND

Submitted by:

HAZARDOUS WASTE REMEDIAL ACTIONS PROGRAM
LOCKHEED MARTIN ENERGY SYSTEMS, INC.
Oak Ridge, Tennessee 37831

for the:

U.S. DEPARTMENT OF ENERGY

Prepared by:

EARTH TECH, Inc.
Oak Ridge, Tennessee 37830

May 1996

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Technical Document to Support No Further Action

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LIST OF ACRONYMS

bgs	below ground surface
BTEX	benzene, toluene, ethylbenzene, and xylene
cm/sec	centimeters per second
CRTC	Combat Readiness Training Center
DD	Decision Document
ft	feet
ft ² /day	square feet per day
HMTC	Hazardous Materials Technical Center
in	inches
IRP	Installation Restoration Program
m ² /day	square meters per day
MDEQ	Michigan Department of Environmental Quality
MDNR	Michigan Department of Natural Resources
NOAA	National Oceanic and Atmospheric Administration
PA	Preliminary Assessment
PCE	tetrachloroethene
PP	priority pollutant
ppb	parts per billion
ppm	parts per million
RI	Remedial Investigation
SI	Site Investigation
SVOC	Semivolatile Organic Compound
TPH	Total Petroleum Hydrocarbons
UST	Underground Storage Tank
VOC	Volatile Organic Compound

1.0 INTRODUCTION

This Decision Document (DD) supports the no further action alternative for Site 11 - Former Underground Fuel Storage Tank at the Alpena Combat Readiness Training Center (CRTC) in Alpena, Michigan. The purpose of the DD is to summarize the existing data for the site and to describe the Air National Guard's rationale for selecting the no further action alternative. The objectives of the DD for Site 11 are:

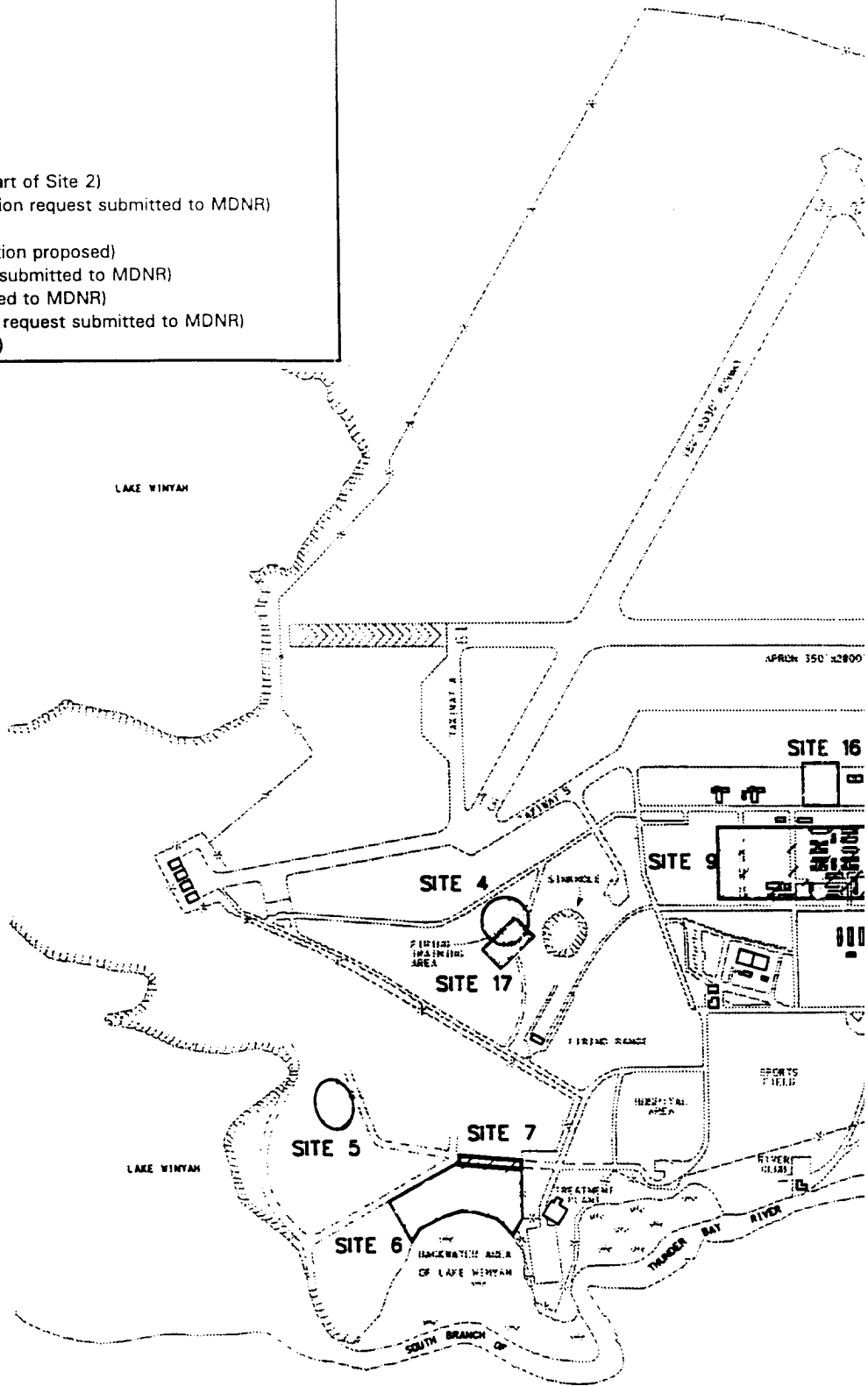
- To briefly describe the location, history, and environmental setting of the Alpena CRTC, Site 11
- To summarize the results from previous Installation Restoration Program (IRP) investigations
- To describe the current status of the site based on the Abbreviated Site Investigation (SI) Report dated November 1993
- To assess the risk to human health and the environment.

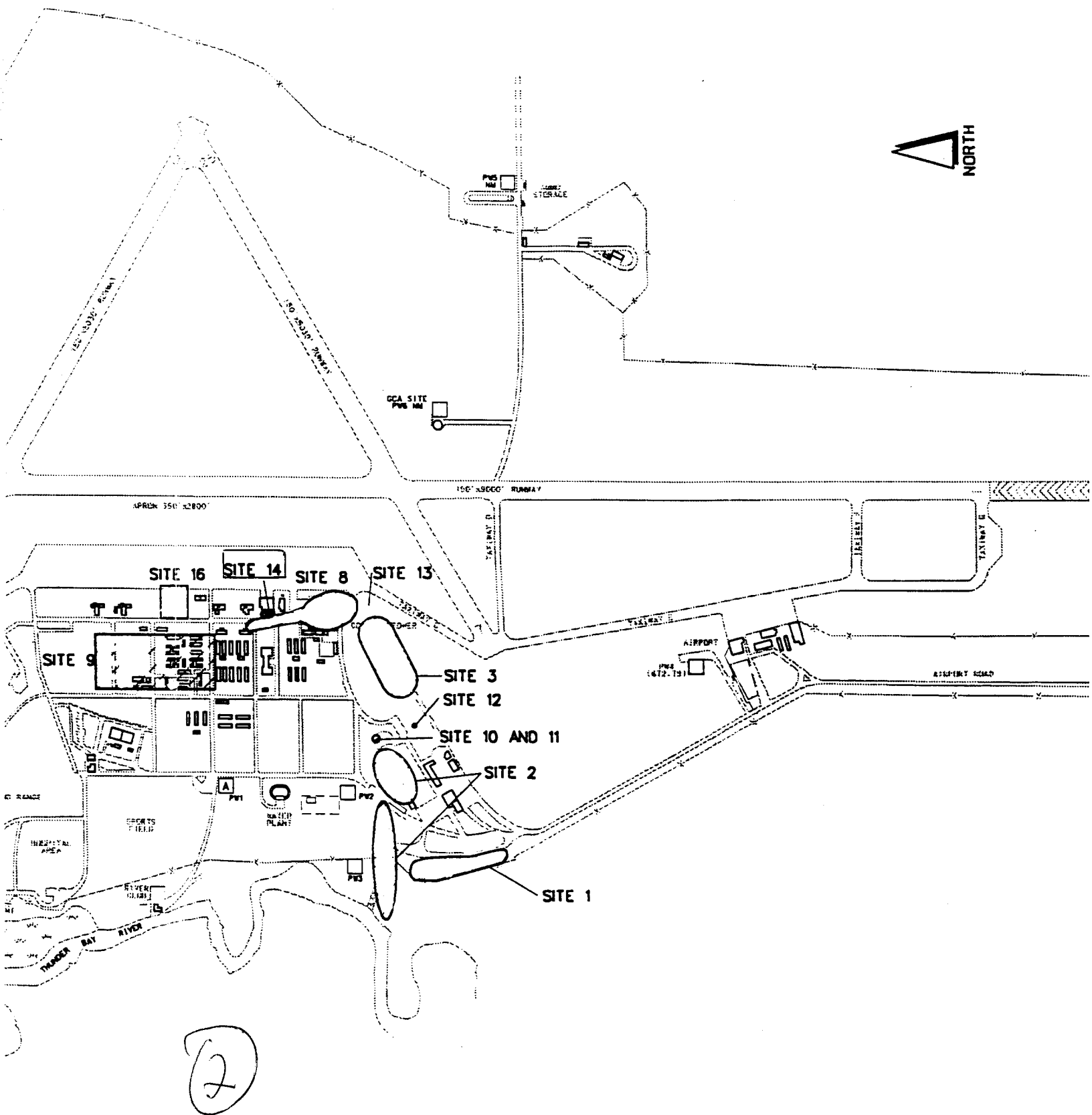
Data resulting from the following activities were used to derive and support the no further action alternative for Site 11: Preliminary Assessment (PA) by the Hazardous Materials Technical Center (HMTTC) (1985), and the Abbreviated SI by The Earth Technology Corporation (1993).

1.1 SITE LOCATION AND DESCRIPTION


Site 11 is located in the southwestern portion of the installation in the motor pool area (see Figure 1-1). As shown on Figure 1-2, Site 11 is located on the northeastern side of Building 7 and is immediately northeast of IRP Site 2. A 4,000-gallon underground storage tank (UST), used to store No. 2 heating fuel oil, was removed from this area. Observations made during

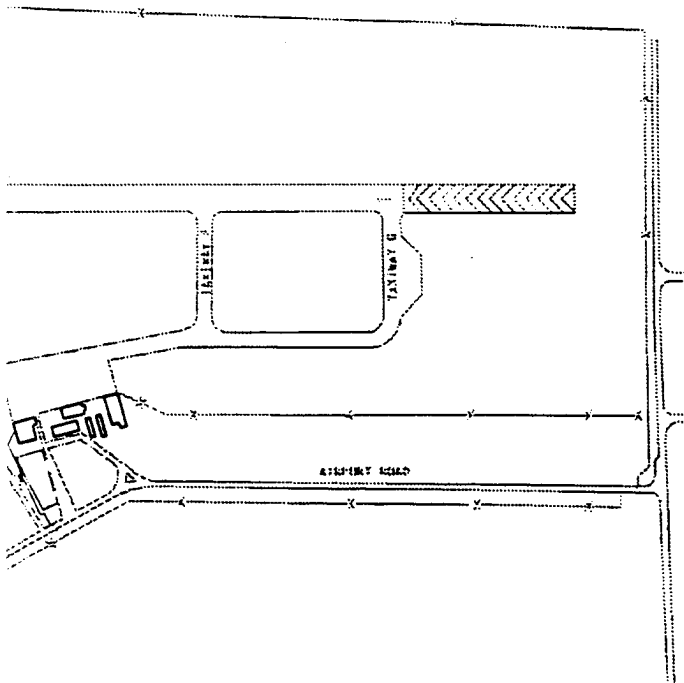
- Site 1 - POL Storage Area (RI Phase)
- Site 2 - Motor Pool Area (RI Phase)
- Site 3 - Former Site of County Garage (RI Phase)
- Site 4 - Third Fire Training Area (RI Phase)
- Site 5 - Second Fire Training Area (RI Phase)
- Site 6 - Former Solid Waste Landfill (RI Phase)
- Site 7 - First Fire Training Area (RI Phase)
- Site 8 - Former Site of Hanger 9 (RI Phase)
- Site 9 - Radar Tower Site (RI Phase)
- Site 10 - Hazardous Waste Storage Area (RI Phase as part of Site 2)
- Site 11 - Underground Fuel Storage Area (no further action request submitted to MDNR)
- Site 12 - Salt Storage Area (no further action proposed)
- Site 13 - Mound Area Next to Taxiway C (no further action proposed)
- Site 14 - UST by Fire Station (no further action request submitted to MDNR)
- Site 15 - Oiled Roads (no further action request submitted to MDNR)
- Site 16 - JP-4 Refueler Parking Apron (no further action request submitted to MDNR)
- Site 17 - Old Kitchen Landfill (RI Phase as part of Site 4)





0 300 Meters
0 1000 Feet
Approximate Scale

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LOCATIONS IRP SIT	
11-95	



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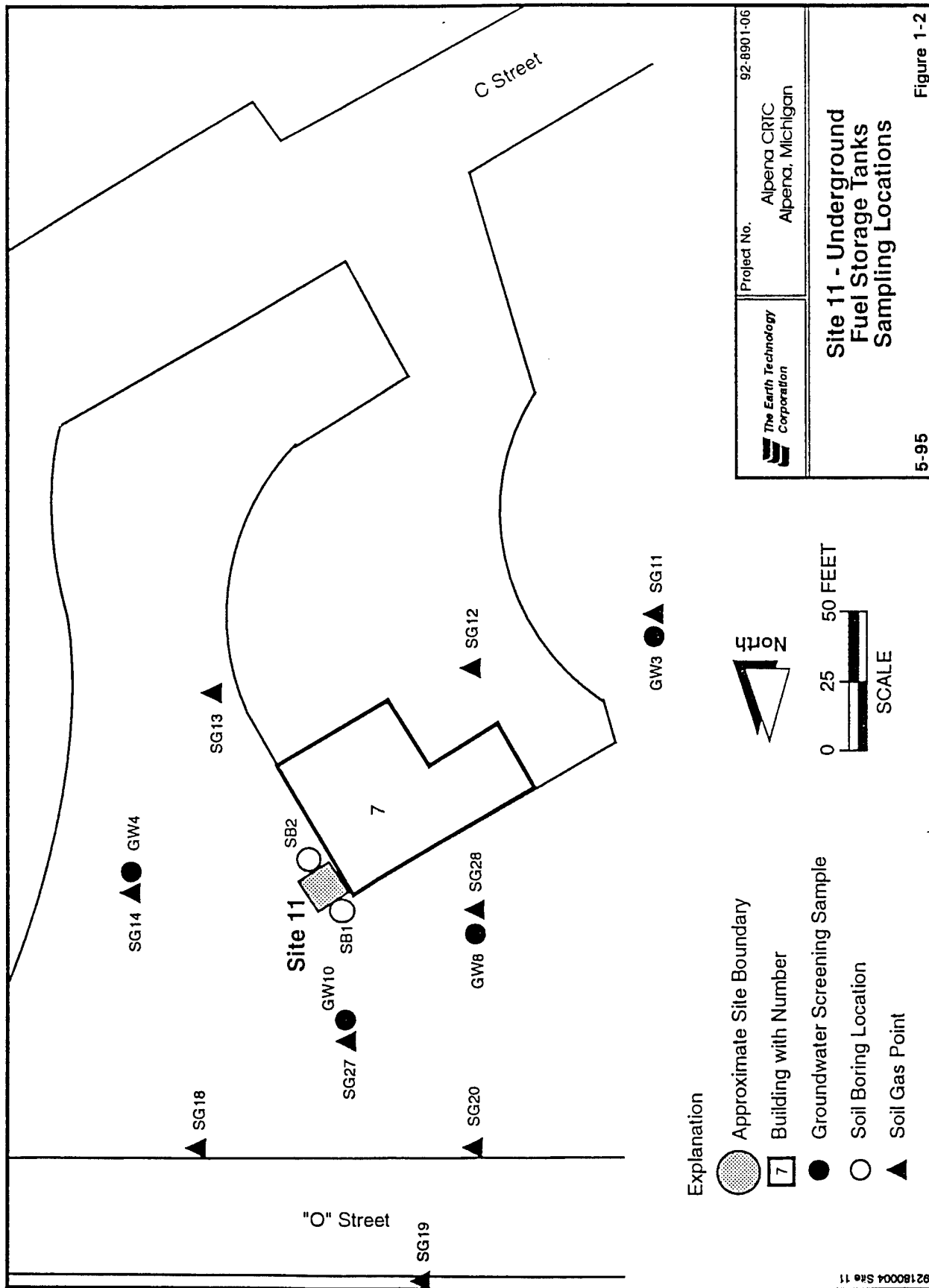
PROJECT NO. MIANG 928901
Alpena CRTC
Alpena, Michigan

DRAFT

LOCATIONS OF IRP SITES

11-95

Figure 1-1



the summer 1993 Remedial Investigation (RI) field activities show that the abandoned tank pit has been filled in and reseeded with grass. The pad upon which the tank previously rested was not excavated and is still in place. Access to the site is restricted by the fencing that surrounds the motor pool.

Adjacent Land Uses

The Alpena CRTC is surrounded by land used primarily for farming, forestry, and tourism. The Alpena County Regional Airport is immediately adjacent to the base, as they share use of approximately 1,755 acres. Immediately adjacent to the site is the motor pool area which consists of several buildings. The motor pool area is covered with asphalt. Adjacent areas are grass-covered. The south branch of the Thunder Bay River lies approximately 1,000 ft northwest of the area. This river is used for recreational activities.

Nearby Population

The Alpena CRTC is located in a rural area with both low population density and growth rates. The nearest residence to this site is located over 2 miles from the base. Approximately 75 full-time employees are located on-base. There is no permanent housing. During the months of April through September, training sessions are held. These sessions last for 2 weeks during which time personnel are housed on-base. Housing is not located in the Site 11 area.

The base is surrounded by forest, wetlands, and rivers and a considerable number of wildlife species are observed on-base. The Michigan Department of Natural Resources (MDNR) [currently the Michigan Department of Environmental Quality (MDEQ)] and the U.S. Fish and Wildlife Service have reported that no threatened or endangered species reside within the boundaries of the CRTC (MDNR, 1994) (U.S. Fish and Wildlife Service, 1994). There are no wetlands within, or adjacent to, the site boundaries.

Surface Water and Groundwater Resources

The Alpena CRTC is located within the Northwestern Lake Huron Water-Resources Subregion (Miller and Twenter, 1986). The southern shore of Lake Winyah, formed by a hydroelectric dam on the Thunder Bay River, borders the base on the north. The south branch of the Thunder Bay River borders the base on the west. From Lake Winyah, the Thunder Bay River flows southeast toward Lake Besser and on to Lake Huron. The water ways in the vicinity of the facility are primarily used for recreational purposes and as a water source. The city of Alpena gets its water supply from Lake Huron. Alpena Township and the CRTC purchase water from the city of Alpena. The water supply intake is located approximately 1.5 miles southwest of the mouth of the Thunder Bay River, approximately 11 miles downstream from the facility.

The hydrogeologic units of interest on the facility are the lacustrine sand (shallow aquifer), the Traverse Group Limestone, and the grey clay aquitard which locally occurs between the two aquifers. Hydrologically, the base is located in the recharge area of the shallow aquifer. The water table in the surficial aquifer is variable over the base, ranging from approximately 5 ft below ground surface (bgs) to approximately 25 to 30 ft bgs. Groundwater beneath the Site 11 area flows northwest towards a sinkhole located in the north-central portion of the base.

1.2 SITE HISTORY AND ENFORCEMENT ACTIVITIES

History

The 4,000-gallon UST was used to store No. 2 heating fuel oil. The tank was installed in 1959 and removed in October 1990. During the MDNR/MDEQ August 1984 site visit, the size, content, and integrity of the tank were questioned. According to the base civil engineer, no evidence of leakage or corrosion was found during removal of the tank. No confirmatory sampling was conducted.

Site 11 was identified in the PA conducted by HMTc (1985). PA activities included a detailed review of pertinent installation records and on-site visits which included interviews with past and present employees. The PA stated that no occurrences of tank leakage or fuel spills had occurred, and tank inventories were performed regularly with no losses reported. Because this site was considered to pose little or no environmental threat, no Hazard Assessment Rating was performed and no further action was recommended.

Regulatory Agency/Public Involvement

A DD was submitted to the MDNR/MDEQ in 1991 stating that Site 11 exhibited no potential for contaminant migration. As requested by the MDNR/MDEQ in their review of the Site 11 DD, an Abbreviated SI (November 1993) was conducted to confirm the presence or absence of contamination at Site 11. SI activities completed at Site 11 included the advancement and sampling of soil borings SB01 and SB02 which were located adjacent to the tank pit (Figure 1-2).

Additional supporting data for the Site 11 DD were acquired during the RI field activities at Site 2 (located adjacent to Site 11). Soil organic vapor and groundwater screening samples were collected near Site 11, as shown on Figure 1-2. These samples were analyzed on-site for benzene, toluene, ethylbenzene, and xylene (BTEX), and target chlorinated volatile organic compounds (VOCs).

Laboratory analyses conducted for VOCs, semivolatile organic compounds (SVOCs), priority pollutant (PP) metals, and total petroleum hydrocarbons (TPH) indicated no organic compounds or inorganic analytes present at concentrations exceeding Act 451, Part 201 generic residential cleanup criteria. The soil gas and groundwater screening results indicated that no hydrocarbons were dispersed in the subsurface soils or groundwater within the vicinity of the tank pit.

1.3 COMMUNITY PARTICIPATION

There has been no community involvement in the investigation conducted at Site 11 (Former Underground Storage Tank) at the CRTC, Alpena, Michigan.

2.0 CURRENT SITE STATUS

Observations made during the summer 1993 RI field activities show that the abandoned tank pit at Site 11 has been filled in and the area reseeded with grass. The following summary of site characteristics includes a description of the environmental setting as well as the results of any sampling performed at the site.

2.1 PHYSIOGRAPHY AND CLIMATOLOGY

The Alpena CRTC is located in an area created by glacial activity, sinkhole (karst) development, and human activities. Glacial activity has resulted in the deposition of lake deposits consisting of sand and clay on a relatively flat surface. A large sinkhole, located north of Site 11, is a significant feature affecting the hydrology of the base (Figure 1-1). The general land surface elevations on base vary between a low of 672 ft above mean sea level to a high of 688 ft above mean sea level.

The climate is characterized as semi-maritime and is affected by the proximity of Lake Huron to the east, which modifies most weather extremes. Summers are warm and sunny while winters are cloudy and snow is common. The precipitation in the area is evenly distributed throughout the year. The mean annual precipitation for the 29-year period beginning in 1957 is 29.15 in. [National Oceanic and Atmospheric Administration (NOAA), 1987]. The estimated mean annual lake evaporation rate for the area is 26 in. (NOAA, 1983). Net annual precipitation is estimated at 3 in. for the time period of 1957 to 1986. The 1-year 24-hour rainfall event for the area is estimated to be 1.75 in. (NOAA, 1963).

2.2 GEOLOGY AND SOIL

The Alpena CRTC is located in the outcrop area of the lacustrine sand of northeast Michigan. The lacustrine sand is composed of quartz sand, pebbles, cobbles of limestone and rock

fragments, and some lenses of reddish-brown clay. This unit varies in thickness from approximately 20 ft at the north end of the base near Lake Winyah, to approximately 60 ft at the southern end of the base. The lacustrine sand is underlain by the Devonian aged Traverse Group Limestone, which is described as a grey fossiliferous limestone, containing some chert (Black, 1983). In some locations this lacustrine sand directly overlies the limestone and in other locations is separated from the limestone by a grey clay aquitard.

Two soil samples were collected at Site 11, one from each end of the former storage tank location in accordance with MDNR/MDEQ criteria. The sampling depths were based on site-specific conditions, such as depth of the tank and concrete pad. Soil samples from soil boring SB01 were collected and logged from 3 to 5 ft and 5 to 7 ft bgs. At soil boring SB02, soil samples were collected and logged from 5 to 7 ft and 10 to 12 ft bgs. SB01 could only be advanced to a depth of 7 ft for the following reasons: 1) the concrete pad which the tank previously sat on was still in place, 2) a large tree located next to the tank pit prohibited moving the soil boring in eastward direction, and 3) an underground gas line was known to be located just north of the tank pit area which prohibited moving the soil boring in this direction.

All soil samples were field-screened using a photoionization detector. The deepest sample from each boring was submitted for laboratory analyses. The material encountered in soil borings SB01 and SB02 consisted of a medium-grained sand with some silt, which appeared to be fill material. This material was underlain by a fine- to medium-grained, well sorted sand.

Laboratory analytical results found no VOCs, SVOCs, or PP metals in concentrations above MDNR/MDEQ cleanup criteria (see Table 2-1). TPH was detected in soil sample SB01 between 5 and 7 ft at 130 ppm. No Act 451, Part 201 cleanup criteria exists for TPH.

Additional supporting data were acquired during RI field activities at Site 2 (located adjacent to Site 11). Soil organic vapor screening samples were collected in the vicinity of Site 11 (see Figure 1-2) and were analyzed for BTEX, chlorinated hydrocarbons, and total volatiles (as JP-4) (see Tables A-1 and A-2 in Appendix A). Low concentrations (22 to 47 ppm) of JP-4 were detected in soil gas samples SG-13, SG-14, and SG-20.

**Table 2-1 Data Summary Table: Soils Site 11 - Underground Storage Tanks
MIANG, Alpena CRTC, Alpena, Michigan**

Sample Number:	P11B010507	P11B021011	
Site:	PC-11	PC-11	
Locator:	SB1	SB2	
Depth (ft):	5 to 7	10 to 11	
Date Sampled:	Nov-11-92	Nov-11-92	
Laboratory:	CompuChem	CompuChem	MDEQ Cleanup
Associated QC Samples:	EB-1, P-TB2, FB1, FB2	EB-1, P-TB2, FB1, FB2	Criteria**
Method: 418.1, mg/kg			
Total Petroleum Hydrocarbons	130	24.3	None
Method: 8010, ug/kg			
Methylene Chloride	9.1 J	5.6 J	100
Method SW 846, mg/kg			
Arsenic	.77 []	.79 []	5.8
Chromium	3	3.1	18
Chromium(3)	0.483	0.410	2
Lead	3.9	1.2	21
Total Chromium	0.483	0.410	

Note: Chromium(3), Chromium(6), and Total Chromium were calculated from extract concentrations. No Chromium(6) was detected.

** Act 451, Part 201 generic residential cleanup criteria.

J - Concentration is estimated.

[] - Concentration is between the Practical Quantitation Limit and the Instrument Detection Limit.

Tetrachloroethene (PCE) was detected in SG-28 at 0.21 ppb. The heating oil tank is not considered the source of the PCE, which was further investigated as part of the Site 2 RI.

2.3 HYDROGEOLOGY

Beneath the Alpena CRTC, groundwater occurs in both the lacustrine sand and limestone aquifers. A feature unique to the installation is the development of a large sinkhole in the north-central portion of the CRTC. Groundwater flow in the lacustrine aquifer generally moves towards the sinkhole, although groundwater flows toward the Thunder Bay River in places on the installation. Groundwater flow direction within the limestone aquifer is unknown. Hydraulic characteristics vary greatly across the base. The hydraulic conductivity in the Site 11 area varies from 7.91×10^{-3} cm/sec to 9.42×10^{-2} cm/sec. The transmissivity varies from an average low of 11 m²/day (118 ft²/day) to an average high of 579 m²/day (6,237 ft²/day).

Four groundwater screening samples were collected near Site 11 as shown on Figure 1-2. The samples were analyzed for BTEX, chlorinated hydrocarbons, and total volatiles (as JP-4) (see Tables A-1 and A-2 in Appendix A). Groundwater was encountered at approximately 8 to 12 ft bgs. No BTEX, chlorinated hydrocarbons, or JP-4 concentrations were detected above the method detection limits. PCE was detected at 0.15 ppb in groundwater sample 2GW-8. It was concluded that the PCE did not originate from the heating oil tank at Site 11. No confirmational groundwater sampling was conducted at Site 11 because the focus of the Abbreviated SI was to confirm the absence or presence of contaminants in the soil. Had the soil gas and groundwater screening or soil confirmational sampling activities indicated significant levels of hydrocarbons indicative of contamination by a UST, further site investigation would have been recommended. The presence of PCE in the screening data was further investigated at Site 2 during the RI.

2.4 SURFACE WATER

Few man-made surface drainage ditches or storm drains are located on-base because the majority of the soils have fair to very rapid infiltration rates. One storm drain is located within the motor pool area. A prominent ditch west of the motor pool area drains surface water runoff toward the Thunder Bay River.

Because no surface water bodies are present at Site 11, surface water and sediment sampling were not conducted.

2.5 AIR

No air monitoring has been conducted at Site 11 except for field screening. The two soil samples were scanned with a photoionization meter for VOC concentrations. No VOCs above background concentrations were detected.

2.6 RECEPTORS

Because a potential contaminant source has not been identified, a discussion of potential receptors is not applicable.

3.0 RISK ASSESSMENT

The only contaminant detected in Site 11 soils was TPH at a concentration of 130 ppm in soil boring SB01. No Act 451, Part 201 generic residential cleanup criteria for TPH has been established. The soil gas and groundwater screening samples collected from locations adjacent to Site 11 did not detect any hydrocarbons. There is little evidence that human health or the environment are at risk by Site 11 conditions. Therefore, no risk assessment has been conducted.

4.0 SELECTED ACTION: NO FURTHER ACTION

The risk to human health and the environment from Site 11 is low. The no further action alternative is proposed on the basis that no evidence exists to suggest the groundwater, surface water, soil, or air are sufficiently contaminated to pose a threat to human health or the environment. Current site conditions and environmental testing data indicate that no further action is warranted at Site 11.

5.0 DECISION

TECHNICAL DOCUMENT TO SUPPORT NO FURTHER ACTION DECLARATION

SITE NAME AND LOCATION

Installation Restoration Program Site
Site 11 - Former Underground Fuel Storage Tank
Alpena Combat Readiness Training Center, Alpena, Michigan

STATEMENT OF BASIS

This decision is based on the results of the Installation Restoration Program (IRP) Phase I Records Search and the Phase II Site Investigation studies. The results of these activities are documented in the Abbreviated Site Investigation Report (The Earth Technology Corporation, November 1993).

DESCRIPTION OF THE SELECTED REMEDY

Based on the current conditions at IRP Site 11, it has been determined that no significant risk or threat to public health or the environment exists. Therefore, no further action under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended, is required.

DECLARATION

This Decision Document represents the selected action for this site developed in accordance with CERCLA, as amended by the Superfund Amendments and Reauthorization Act of 1986, and the National Contingency Plan. It also satisfies the requirements of the National Environmental Policy Act that apply to CERCLA response actions. It has been determined that the selected remedy of no further action is protective of human health and the environment, attains federal and state requirements that are applicable or relevant and appropriate, and is cost effective. The statutory preference for further treatment is not satisfied because further treatment was not found to be necessary. Contaminant levels at the site have been determined to present no significant threat to human health or the environment; thus, no treatment is necessary.

[Signature]
Chief, Environmental Division

29 May 96
Date

William R. Lee
State Regulatory Agency Representative
MDEQ - ERD

Concur
Concur/Nonconcur

6/27/96
Date

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APPENDIX A
Screening Data

**Table A-1 Soil Gas and Groundwater Screening
JP-4 Standard Data**

Soil Gas Sample I.D.	Depth (ft)	JP-4 (ppm)
2SG-11	5	< 20
2SG-12	5	< 20
2SG-13	5	22
2SG-14	5	47
2SG-18	5	< 20
2SG-20	5	26
2SG-27	5	< 20
2SG-28	5	< 20
Groundwater Sample I.D.	Depth (ft)	JP-4 (ppb)
2GW-3	8-11	22
2GW-8	8-11	< 22
2GW-10	8-11	< 22

Source: EnviroSurv, Inc. Screening Results; Final Abbreviated Site Investigation Report, Alpena Readiness Training Center, Alpena County Regional Airport, Michigan Air National Guard, Alpena, Michigan, November 1993.

**Table A-2 Soil Gas and Groundwater Screening
Target VOC Data (ppm)**

Soil Gas Sample No.	1,1-DCE	t-1,2-DCE	c-1,2-DCE	1,1,1-TCA	TCE	PCE	Benzene	Toluene	Ethylbenzene	Total Xylenes
2SG-11-5	<0.5	<0.5	<1.0	<0.05	<0.05	<0.05	<5.0	<5.0	<5.0	<5.0
2SG-12-5	<0.5	<0.5	<1.0	<0.05	<0.05	<0.05	<5.0	<5.0	<5.0	<5.0
2SG-13-5	<0.5	<0.5	<1.0	<0.05	<0.05	<0.05	<5.0	<5.0	<5.0	<5.0
2SG-14-5	<0.5	<0.5	<1.0	<0.05	<0.05	<0.05	<5.0	<5.0	<5.0	<5.0
2SG-18-5	<0.5	<0.5	<1.0	<0.05	<0.05	<0.05	<5.0	<5.0	<5.0	<5.0
2SG-20-5	<0.5	<0.5	<1.0	<0.05	<0.05	<0.05	<5.0	<5.0	<5.0	<5.0
2SG-27-5	<0.5	<0.5	<1.0	<0.05	<0.05	<0.05	<5.0	<5.0	<5.0	<5.0
2SG-28-5	<0.5	<0.5	<1.0	trace	trace	0.21	<5.0	<5.0	<5.0	<5.0
Groundwater Sample No.										
2GW-3-8-11	<0.5	<0.5	<1.0	<0.05	<0.05	<0.05	<5.0	<5.0	<5.0	<5.0
2GW-8-8-11	<0.5	<0.5	<1.0	<0.05	<0.05	<0.05	<5.0	<5.0	<5.0	<5.0
2GW-10-8-11	<0.5	<0.5	<1.0	<0.05	<0.05	<0.05	<5.0	<5.0	<5.0	<5.0

Source: EnviroSurv, Inc. Screening Results; Final Abbreviated Site Investigation Report, Alpena Readiness Training Center, Alpena County Regional Airport, Michigan Air National Guard, Alpena, Michigan, November 1993.